# Chapter 3

# Dental Radiographic Units
## Intraoral and Panographic

**Introduction (Intraoral)**

1. This unit is one of the simplest x-ray machines to evaluate.
2. The low output is the biggest obstacle to performing a survey, but this can be overcome by increasing exposure time or decreasing the target to chamber distance.
3. Record the settings of all variable controls on the control console and return to these settings at the end of the survey.

**Introduction (Panoramic)**

1. The panoramic dental x-ray unit is a challenge for even the most experienced physicist. The arcing motion of the tube head during exposure along with the thinly collimated beam make measurement of output parameters difficult at best.

2. The following parameters may, however, be evaluated, without too much difficulty:

    a. Timer accuracy;
    b. Beam quality; and,
    c. Beam/film slit alignment

**Minimum Required Personnel Qualifications**:

Level 1 (Basic X-ray Surveyor)

**Testing Periodicity**:

All units: Every 24 months, upon acceptance and after major repairs

**Instrumentation**:

1. Electrometer with small ion chamber
2. kVp meter
3. Pulse counter
4. Type 1100 10 x 10 cm Aluminum plates (varying thicknesses; at least 5mm total)
5. Stopwatch
6. Tape measure
7. Cardboard cassette or ready pack film
8. Surgical adhesive tape
9. Fluorescent screen or bitewing film
10. Optional: BRH test stand

**References**


1. AAPM Report 31, *Standardized Methods for Measuring Diagnostic X-ray Exposures*. 1990.
2. Code of Federal Regulations, Title 21, Chapter 1, Section 1020.30, 1020.31, 1020.32; 3 May 1993 edition.
3. Curry, T.S. III, Dowdey J.E., Murry, R.C. Jr. *Christensen's Physics of Diagnostic Radiology*. Lea & Febiger, Philadelphia. 1990.
4. Gray, J.E., Winkler, N.T., Stears, J., Frank, E.D. *Quality Control in Diagnostic Imaging*; University Park Press, Baltimore, 1983.